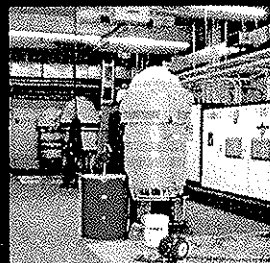
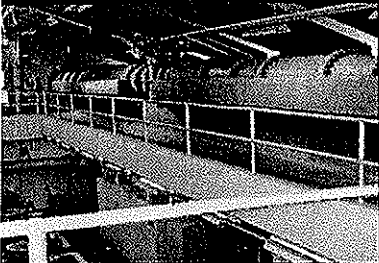




# Preliminary Engineering

for the  
**Wet Weather Capacity  
Improvements**  
at the  
**East Street and  
Boulevard Pump Stations**  
and the  
**East Shore  
Water Pollution  
Abatement Facility**

Prepared for  
**Greater New Haven Water  
Pollution Control Authority,**  
New Haven, Connecticut



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## Boulevard Pump Station

A list of the recommended improvements at the Boulevard Pump Station is summarized below:

- Replace two existing, two-stage screens with three, single-stage climber type bar screens with  $\frac{3}{4}$ " openings. Potential manufacturers: IDI, USFilter, Parkson, Duperon.
- Provide screenings presses to compact the screenings and convey compacted screenings to a dumpster in the garage. Potential manufacturers: IDI, USFilter, Parkson, Hycor.
- Remove existing grit removal system at the Pump Station. Hydraulic analyses show that hydraulic efficiency will be improved at the pump stations, increasing conveyance and decreasing CSO at nearby overflow locations. Current channels will continue to be used for conveyance of the screened flow to the wet well. The channels will be modified to increase the velocity through them and prevent settling of grit.
- Replace main intake gate. Potential manufacturer: Rodney Hunt.
- Replacement of gate operators:
  - Replace all hydraulic cylinders. Potential manufacturer: Rodney Hunt.
- Pumps improvements:
  - Four new centrifugal pumps (3 available for operation, one held in reserve for emergency situations), rated for 11,000 gpm with a total dynamic head of 206.5 feet. (Pump Selection will need to be confirmed based on final recommendations and design of WPAF improvements)
  - New 450 HP vertical induction 900 rpm motors
  - New 450 HP 18 pulse AFDs
- New 1 MGD recirculation line with nozzles (from pump effluent to wet well) to prevent stratification of grease on top of wastewater in wet well.

Figure 3 shows the potential implementation of the modifications to the screening systems.

# Capital Improvements

## East Street Pump Station

A list of the recommended improvements at the East Street Pump Station is summarized below:

- Replace two existing, two-stage screens with three, single-stage climber type bar screens with  $\frac{3}{4}$ " openings. Potential manufacturers: IDI, USFilter, Parkson, Duperon.
- Provide screenings presses to compact the screenings and convey the compacted screenings to a dumpster in the garage. Potential manufacturers: IDI, USFilter, Parkson, Hycor.
- Remove existing grit removal system at the Pump Station. Hydraulic analyses show that hydraulic efficiency will be improved at the pump stations, increasing conveyance and decreasing CSO at nearby overflow locations. Current channels will continue to be used for conveyance of the screened flow to the wet well. The channels will be modified to increase the velocity through them and prevent settling of grit.
- Replace main intake gate. Potential manufacturer: Rodney Hunt, Fontaine.
- Replacement of gate operator/actuators:
  - Replace electric actuation system with a centralized hydraulic system. Replace current electric actuators and hydraulic cylinders in all gates with new hydraulic cylinders. Potential manufacturer: Rodney Hunt
  - Abandon intake gate hydraulic operation system and utilize new centralized hydraulic system for operation of intake gate. Potential manufacturer: Rodney Hunt.
  - Replace wet well gate(s) operation system with a new hydraulically operated system. Potential Manufacturer: Rodney Hunt.
- Pumps improvements:
  - Four new centrifugal pumps (3 available for operation, one held in reserve for emergency situations), rated for 12,000 gpm with a total dynamic head of 97.5 feet. (Pump Selection will need to be confirmed based on final recommendations and design of WPAF improvements)
  - Shaft replacement (new shafts approximately 20 feet long) to raise motor and drives to second floor (above flood level to prevent damage in case of storm surge).
  - New 250 HP vertical induction 900 rpm motors
  - New 250 HP 18 pulse AFDs
- New 1 MGD recirculation line with nozzles (from pump effluent to wet well) to prevent stratification of grease on top of wastewater in wet well.

Figure 2 shows the potential implementation of the modifications to the screening systems at the Pump Station.